

# THE MARKET FOR CELLULAR BILLING SERVICES

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THE MARKET FOR CELLULAR BILLING SERVICES

SPECIAL STUDY FOR

GTE DATA SERVICES

September 12, 1986

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## INTRODUCTION

- o IN MID-JUNE GTE DATE SERVICES COMMISSIONED A STUDY OF THE MARKET FOR CELLULAR BILLING SERVICES IN ORDER TO BETTER POSITION ITS ACTIVITIES IN THIS ARENA.
- o IN CONJUNCTION WITH INPUT A TELEPHONE SURVEY QUESTIONNAIRE WAS DEVELOPED AND ADMINISTERED TO 61 WIRELINE AND NON-WIRELINE OPERATORS OF CELLULAR SERVICES IN THE TOP 90 MARKETS.
- o DATA WAS GATHERED ON A WIDE RANGE OF REVELANT ITEMS INCLUDING:
  - CURRENT PROCESSING SOURCE
  - SERVICE FEATURES USED
  - SERVICE FEATURES DESIRED
  - EXPECTED GROWTH
  - SATISFACTION WITH SERVICE
  - PRICING
  - LIKELIHOOD OF CHANGING SERVICES
  - USEFULNESS OF SPECIFIC GTE-PROPOSED FEATURES -OTHER ITEMS

**INPUT**



## INTRODUCTION (cont'd)

- o THIS REPORT SETS FORTH STUDY FINDINGS IN THESE AND RELATED AREAS ALONG WITH INPUT'S ESTIMATE OF THE SIGNIFICANCE OF THESE ITEMS.
- o OF THE 61 COMPANIES REPORTED IN THIS STUDY 27.9% (17) WERE WIRELINES WHILE 72.1% WERE NON-WIRELINES.
- o WITH WIRELINES, IT IS IMPORTANT TO NOTE THAT BILLING IS HIGHLY CENTRALIZED AND CONSOLIDATED. THESE ARE "SINGLE LOCATION" BILLERS. OFTEN THEY HAVE LONG-STANDING BILLING RELATIONSHIPS.
- o DESPITE THESE LONG-TERM RELATIONSHIPS, THE DEGREE OF SATISFACTION IS NOT ALWAYS HIGH. OVERALL, SATISFACTION WITH BILLING SERVICES IS NOT OUTSTANDING COMPARED TO MANY SERVICES INPUT HAS EVALUATED.
- o OVERALL QUALITY JUDGMENT ON A SCALE OF 1-5 IS A 3.4 WITH 11.5% RATING SERVICE AS EXCELLENT OR "5."

**INPUT**





## INTRODUCTION (cont'd)

- o EQUALLY OR PERHAPS EVEN MORE SIGNIFICANT IS THE FACT THAT 23% STATE IT IS "HIGHLY LIKELY" (5) THAT THEY WILL CONSIDER CHANGING BILLING SERVICE PROVIDERS. ANOTHER 23% RATE THE PROBABILITY OF CHANGING PROVIDER AS A "4." A TOTAL OF 46% INDICATE, THEREFORE, THAT IT IS LIKELY THEY WOULD CHANGE BILLING SERVICES.
- o INPUT CONSIDERS THIS TO BE A HIGHLY VOLATILE MARKET WITH LESS THAN SATISFACTORY SERVICE LEVELS TO USERS IN EVIDENCE. AS SUCH, IT MAY PRESENT AN OPPORTUNITY TO GTEDS.

**INPUT**



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### SATISFACTION DETAIL AND CHANGE PROPENSITY

<u>COMPANY</u>	<u>N</u>	<u>QUALITY MEAN</u>	<u>% HIGH QUALITY</u>	<u>CHANGE MEAN</u>	<u>% HIGH CHANGE</u>
AUXTON	5	3.0	40	3.4	60
CINN. BELL	4	3.0	25	3.5	50
CBSI	15	3.4	33	3.6	53
CELLTECH	12	3.1	17	4.3	75
BANK ILL.	5	2.6	20	4.6	100

- o DATA EXCLUDES "OTHER" AND INHOUSE RESPONDENTS AND CONCENTRATES ON FULLY INDEPENDENT BILLING SERVICES.
- o NOTE THAT FOR ALL VENDORS THE MEAN CHANGE RATING EXCEEDS THE MEAN SATISFACTION RATING. WHILE NOT STATISTICALLY SIGNIFICANT AT THESE SMALL CELL SIZES, THE TREND IS CLEAR.
- o MORE IMPORTANTLY, OBSERVE THE PROPORTIONS FOR HIGH QUALITY SERVICE (4 OR 5 RATE) VERSUS THE HIGH WILLINGNESS TO CONSIDER CHANGE.

**INPUT**



### SATISFACTION (cont'd)

- o SPECIFICALLY OBSERVE THAT ALL BANK OF ILLINOIS RESPONDENTS ARE HIGHLY LIKELY TO CHANGE AND THAT 3 OUT OF 4 CELLTECH R'S ARE ALSO HIGHLY LIKELY. FOR THESE TWO ALSO NOTE THAT LESS THAN 1 IN 5 RESPONDENTS RATES SERVICE QUALITY AS HIGH.
- o DURING THE COURSE OF THIS STUDY CINCINNATI BELL ACQUIRED CBSI. SIGNIFICANTLY, NEITHER IS STRONG IN SATISFACTION WITH ABOUT HALF OF EACH CLIENT BASE HIGHLY LIKELY TO CONSIDER CHANGING VENDORS. THIS SUGGEST THAT CINCINNATI BELL HAS NOT ACQUIRED A STRONG AND LOYAL CLIENT BASE AND WOULD SEEM TO HAVE PROBLEMS WITH ITS OWN CLIENTS. CINCINNATI BELL, IN INPUT'S OPINION, HAS A MAJOR CHALLENGE IS STABILIZING TWO CLIENT BASES ON TWO SEPARATE SYSTEMS.
- o LIKEWISE AUXTON DOES NOT APPEARS TO HAVE SERVED ITS CLIENTS PARTICULARLY WELL WITH 60% VERY LIKELY TO CONSIDER CHANGE.

**INPUT**





**SATISFACTION** (cont'd)

- o WE CONCLUDE THAT RESPONDENTS DO NOT BELIEVE THAT THEY ARE PARTICULARLY WELL-SERVED BY THEIR VENDORS AND THAT THEY EXHIBIT RELATIVELY LOW LOYALTY.
- o IF GTEDS CAN PROVIDE A CREDIBLE ALTERNATIVE IT SHOULD FIND THE TASK OF PRESENTING ITS SERVICE "CASE" TO BE RELATIVELY EASY. THESE RESPONDENTS ARE NOT WED TO THEIR CURRENT SUPPLIERS AND SHOULD READILY CONSIDER ALTERNATIVES.
- o WHILE CELLTECH AND BANK OF ILLINOIS CLIENTS ARE PARTICULARLY VULNERABLE, NO VENDOR EXHIBITS STRONG ABILITY TO HOLD CUSTOMERS.

**INPUT**



### MARKET GROWTH AND SIZE

- o RESPONDENTS ARE EXTREMELY BULLISH ON THE GROWTH OF CELLULAR. THE MEAN FORECAST GROWTH 1986-1987 WAS 71.9%. IN CONSIDERING THIS FORECAST, IT MUST BE RECOLLECTED THAT IT IS BIASED BY THE HIGH PROPORTION OF NON-WIRELINES IN START-UP MODE WHICH AVERAGED ABOUT 2,700 CURRENT SUBSCRIBERS. THIS WILL GROW TO ABOUT 4,200 IN MID-1987.
- o LONGER TERM (3 YEAR HORIZON) RESPONDENTS EXPECT 49.8% ANNUAL AVERAGE GROWTH. THIS WOULD PLACE THE AVERAGE NON-WIRELINE RESPONDENT AT 9200 SUBSCRIBERS IN MID-1989. THIS IMPLIES ANNUALIZED BILLS OF ABOUT 110,000 PER RESPONDENT IN 1989.
- o THERE IS SUBSTANTIAL VARIATION ABOUT THE MEAN GROWTH FOR INDIVIDUAL RESPONDENTS. IN GENERAL, GROWTH ESTIMATES APPEAR TO BE INVERSELY RELATED TO SIZE OF SUBSCRIBER BASE.

**INPUT**





## MARKET GROWTH AND SIZE (cont'd)

BASED ON TRADE DATA ON THE NUMBER OF SUBSCRIBERS AS OF 1/86 AND THE RESPONDENT-PROVIDED GROWTH ESTIMATES THIS WOULD RESULT IN A SUBSCRIBER BASE OF 1.07 MILLION UNITS AT 1/89, UP FROM THE CURRENT (1/86) 320,000 SUBSCRIBERS. SUCH A COUNT WOULD GENERATE 12.9 MILLION ANNUAL BILLS. AT AN AVERAGE OF \$2.50 PER BILL THIS IMPLIES THE EXISTENCE OF A \$33.3 MILLION PROCESSING MARKET IN 1989.

- o AS SPECIALIZED MARKETS GO, THIS IS NOT PARTICULARLY LARGE. IF ORDINARILY PROFITABLE (FOR PROCESSING) WE WOULD EXPECT A "NET" PROFIT IN THE MARKET OF \$2-3 MILLION AT THESE VOLUMES IN 1989. THIS WOULD BE DIVIDED AMONG THE PARTICIPANTS.
- o SINCE A VERY AMBITIOUS 50% "SHARE" WOULD IMPLY PROFITS OF \$1-1.5 MILLION IN 1989, WE WOULD STRONGLY SUGGEST THAT GTEDS CONDITION ITS PARTICIPATION BY REALISTIC ASSESSMENTS OF RETURN ON INVESTMENT.

**INPUT**



### MARKET GROWTH AND SIZE (cont'd)

- o DEPENDING UPON THE ECONOMICS OF MOBILNET'S PROCESSING REQUIREMENTS, IT MAY BE APPROPRIATE TO PLACE CONSIDERABLE VALUE ON THE ADD-ON "OUTSIDE" BUSINESS EVEN THOUGH THE MARKET IS NOT LARGE.
- o WE CONCLUDE THAT CELLULAR MARKET IS EXPECTED TO GROW RAPIDLY BY RESPONDENTS OVER THE NEXT THREE YEARS. COMBINING RESPONDENT GROWTH FORECASTS WITH TRADE SUBSCRIBER DATA AND ESTIMATED COST DATA LEADS TO A PROJECTION OF A MODERATE MARKET SIZE IN 1989. THIS MARKET IS BELIEVED TO BE SUFFICIENT TO WARRANT CAREFUL INCREMENTAL INVESTMENT BEYOND MOBILNET REQUIREMENTS.
- o NOTE: RESPONDENTS IN THIS STUDY REPORTED 149,950 SUBSCRIBERS OR ABOUT 47% OF THE 1/86 CTIA BASE OF 320,000. THIS IS THOUGHT TO BE AN AMPLE PROPORTION FOR MARKET ESTIMATION PURPOSES.

**INPUT**



## SYSTEM FEATURES

- o EXTENSIVE DATA WAS GATHERED ON SYSTEM FEATURES AND THEIR USE. ALSO GATHERED WAS DATA ON THE IMPORTANCE OF THESE FEATURES AT THE PRESENT TIME AND THREE YEARS IN THE FUTURE.
- o A TOTAL OF 30 SYSTEM FEATURES WAS TESTED. THE FEATURES FOR TEST WERE JOINTLY DEVELOPED BY GTEDS AND INPUT PERSONNEL.
- o RESPONDENTS WERE ASKED WHETHER OR NOT THEIR CURRENT SYSTEM PROVIDED THE CAPABILITY. THEY WERE THEN QUERIED AS TO HOW IMPORTANT THE FEATURE WAS (OR WOULD BE) IN THEIR OPERATIONS.
- o IMPORTANCE - BOTH CURRENT AND FUTURE - WAS RATED ON A ONE TO FIVE (1-5) SCALE WITH "1" DESIGNATED AS UNIMPORTANT" AND "5" DESIGNATED AS "VERY IMPORTANT."

**INPUT**





### SYSTEM FEATURES (cont'd)

- o FEATURE RATINGS VARIED BETWEEN 1.8 TO 4.9. THE RANGE OF VARIATION INDICATES THAT THE DIFFERENCE BETWEEN FEATURES IS MEANINGFUL TO RESPONDENTS.
- o SUBSTANTIAL VARIATION WAS ALSO OBSERVED IN THE PROPORTION EMPLOYING THE FEATURES. PROPORTION WITH A SPECIFIC FEATURE RANGED FROM 6.6% TO 75.4%.
- o OF THOSE FEATURES TESTED, 40% INCREASED IN IMPORTANCE NOW VERSUS 3 YEARS IN THE FUTURE IN A STATISTICALLY SIGNIFICANT WAY I.E., 90% CONFIDENCE INTERVAL. THEY ARE PRESENTED IN THE TABLE.

**INPUT**



## SYSTEM FEATURES (cont'd)

### SIGNIFICANT CHANGE FEATURES

<u>FEATURE</u>	<u>% USE NOW</u>	<u>RATING NOW</u>	<u>RATING 3 YRS</u>	<u>DELTA</u>
AUTO INTERFACE	24.6	4.1	4.7	.6
CENTRAL SWITCH MGMT.	55.7	4.0	4.6	.6
SINGLE CLEAR ROAMERS	13.1	4.0	4.6	.6
ELEC. DATA XFER.	11.5	3.3	4.4	1.1
ROAMER RCVABL.	9.8	3.8	4.3	.5
LOCK BOX	47.5	3.5	4.2	.7
MULTI-SITE BACKUP	27.9	3.6	4.2	.6
MULTIPLE BILL CYCLES	29.5	2.6	3.7	1.1
BILL ON DEMAND	8.2	2.7	3.7	1.0
BALANCE CYCLE LOADS	23.0	2.8	3.6	.8
LASER PRINTING	16.4	2.8	3.5	.7
REMOTE ACCT. INIT.	13.1	2.3	2.1	.8

- o RANKING IS BY HIGH FUTURE IMPORTANCE.

**INPUT**





## SYSTEM FEATURES (cont'd)

- o CERTAIN OF THESE FEATURES ARE POTENTIAL DIFFERENTIATORS OF A GTEDS OFFERING IN THAT THEY ARE PERCEIVED AS HIGHLY IMPORTANT BUT ARE ONLY IN LIMITED USE BY 1/4 OR LESS OF RESPONDENTS. THEY COULD CONSTITUTE AN IMPORTANT DEVELOPMENT AGENDA AND SHOULD DISTINGUISH GTEDS SERVICE FROM THE COMPETITION.
- o DIFFERENTIATORS INCLUDE:
  - AUTOMATIC INTERFACE TO MTSO
  - A SINGLE CLEARING HOUSE FOR ROAMERS
  - ELECTRONIC DATA TRANSFER INSTEAD OF TAPE
  - INTER-COMPANY ROAMER RECEIVABLES BY CLEARING HOUSE
  - MULTI-SITE PROCESSING FOR BACKUP
- o IMPORTANCE IS SOMEWHAT LOWER BUT STILL CONSIDERABLE FOR:
  - MULTIPLE BILLING CYCLES
  - BILLING ON DEMAND
  - BALANCED LOADING CYCLES

**INPUT**



### SYSTEM FEATURES (cont'd)

- o MULTIPLE BILLING CYCLES AND BILLING ON DEMAND ARE CHARACTERIZED BY VERY STEEP IMPORTANCE INCREASES AND LOW TO VERY LOW CURRENT INCIDENCE, BOTH DESIRABLE CHARACTERISTICS.
- o LASER PRINTING AND REMOTE ACCOUNT INITIATION FOR AGENTS ARE CHARACTERIZED BY LIMITED CURRENT USE AND LESSER IMPORTANCE. IF EASILY PROVIDED THEY COULD BE OFFERED BUT ARE NOT MANDATORY FOR SUCCESSFUL DIFFERENTIATION IN THIS MARKET.
- o GIVEN THE PARTICULARLY HIGH DELTAS AND LOW UTILIZATIONS FOR ELECTRONIC DATA TRANSFER, MULTIPLE BILLING CYCLES AND BALANCED CYCLE LOADS THESE SHOULD BE EARLY IN ANY DEVELOPMENT AGENDA.

**INPUT**



### SYSTEM FEATURES (cont'd)

- o THE ROAMER FUNCTIONS ARE, IN ALL LIKELIHOOD, EXTREMELY COMPLEX TO IMPLEMENT AND FOR THIS REASON WOULD NOT BE RECOMMENDED FOR "FAST" DEVELOPMENT. THEY ALSO IMPLY A ROAMER "LINE OF BUSINESS" WHICH CANNOT BE RECOMMENDED (OR NOT RECOMMENDED) BASED ON THIS RESEARCH AS THE ROAMER ISSUE IS EXTREMELY COMPLEX AND TO A CONSIDERABLE EXTENT A SEPARATE ACTIVITY.
- o WE CONCLUDE THAT THERE ARE NUMEROUS FEATURES WHICH ARE HIGHLY ATTRACTIVE TO RESPONDENTS AND WHICH ARE NOT CURRENTLY IN USE. EFFECTIVE IMPLEMENTATION OF THESE FEATURES WOULD PROVIDE GTEDS WITH SUBSTANTIAL SERVICE DIFFERENTIATION AND COMPETITIVE ADVANTAGE.

**INPUT**



### MANDATORY SYSTEM FEATURES

- o OF THE FEATURES TESTED, CERTAIN ONES APPEAR AS "MANDATORY" FOR A SUCCESSFUL OFFERING SINCE THEY HAVE HIGH CURRENT/FUTURE IMPORTANCE AND ARE IN CURRENT USE BY LARGE PROPORTIONS OF THE RESPONDENTS. EXCLUSION OF ANY SINGLE FEATURE OR GROUP OF FEATURES COULD RESULT IN REJECTION OF A GTEDS OFFERING NOW OR IN THE FUTURE, HENCE THE DESCRIPTION OF "MANDATORY."

<u>FEATURE</u>	<u>% USE NOW</u>	<u>RATING NOW</u>	<u>RATING 3 YRS</u>
AVAILABLE # INVENT.	75.4	4.0	4.4
INDIV. CO. ROAMER	68.9	4.1	4.4
O.L. ACCOUNT INQUIRY	68.9	4.7	4.9
O.L. ORDER ENTIRY	67.2	4.6	4.7
TREATMENT PROCESS	63.9	4.1	4.5
O.L. PAYMENT HIST	62.3	4.4	4.6
M/F BASED BILLING	55.7	3.6	3.9
VENDOR SYS. TABLE	42.6	3.5	4.0
DEPOSIT ACTTNG.	41.0	3.5	4.0
3 DAY BILL MAIL	39.3	4.4	4.6
NETWORK REDUNDANCY	39.3	3.8	4.1

**INPUT**





### SYSTEM FEATURES (cont'd)

- o OF THE FEATURES TESTED, CERTAIN ONES APPEAR AS "MANDATORY" FOR A SUCCESSFUL OFFERING SINCE THEY HAVE HIGH CURRENT/FUTURE IMPORTANCE AND ARE IN CURRENT USE BY LARGE PROPORTIONS OF THE RESPONDENTS. EXCLUSION OF ANY SINGLE FEATURE OR GROUP OF FEATURES COULD RESULT IN REJECTION OF A GTEDS OFFERING NOW OR IN THE FUTURE, HENCE THE DESCRIPTION OF "MANDATORY."

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AVAILABLE # INVENT.	75.4	4.0	4.4
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3 DAY BILL MAIL	39.3	4.4	4.6
NETWORK REDUNDANCY	39.3	3.8	4.1

**INPUT**



### SYSTEM FEATURES (cont'd)

- o THESE FEATURES HAVE HIGH CURRENT USE (MOST MAJORITY USE) AND HIGH CURRENT IMPORTANCE. ALTHOUGH ALL INCREASE IN IMPORTANCE, THE INCREASES ARE NOT STATISTICALLY SIGNIFICANT AT THE 90% LEVEL.
- o THE DATA ARE RANKED BY FREQUENCY OF OCCURENCE OF THE FEATURE. TO DIFFERENTIATE THE IMPORTANCE OF A FEATURE 0.6 POINTS IS REQUIRED BETWEEN THE RATINGS. ACORDINGLY VENDOR SYSTEM TABLES (NOW) IS SIGNIFICANTLY LESS IMPORTANT (STATISTICALLY, AT THE 90% CONFIDENCE INTERVAL) THAN TREATMENT PROCESSING (3.5 vs. 4.1) BUT IS NOT SIGNIFICANTLY DIFFERENT (MORE IMPORTANT) THAN AVAILABLE # INVENTORY 4.0).
- o WHILE CONSIDERING RELATIVE IMPORTANCE ON THIS LIST MAY BE USEFUL FOR SOME PURPOSES, IT SHOULD BE RECOLLECTED THAT THE UBIQUITY OF THESE FEATURES MAKES THEM MANDATORY FOR MARKET PARTICIPATION IN A MEANINGFUL WAY.

**INPUT**



### SYSTEM FEATURES (cont'd)

- o STATISTICALLY SIGNIFICANTLY LESS IMPORTANT ARE MANAGEMENT REPORTS, DOCUMENTATION, TRAINING AND - INTERESTINGLY - PRICE.
- o SYSTEM RELIABILITY AND ON-LINE RELIABILITY ARE SOME WHAT LESS OF A PROBLEM AS INDICATED BY THE DIFFERENTIAL. NOTE THAT 62% OF R'S GIVE SYSTEM RELIABILITY A RATING OF 4/5. O.L. RELIABILITY, WHILE ACHIEVING THE SAME MEAN RATING (4.7) EXHIBITS LOWER SATISFACTION WITH 46% RATING 4 OR 5.
- o RERUNS AND TECHNICAL ASSISTANCE SHOW A DIFFERENTIAL SIMILAR TO SYSTEM RELIABILITY BUT OBSERVE THAT ONLY 30% RATE RERUN PERFORMANCE A 4/5. THIS IS APPARANTLY A PROBLEM AREA FOR SOME R'S.
- o TECHNICAL ASSISTANCE, ALTHOUGH AT THE SAME 1.2 DIFFERENTIAL, RATES 4/5 BY ABOUT HALF THE R'S WHILE 93% RATE IT 4/5 ON IMPORTANCE. FOR SOME R'S THIS COULD BE A POWERFUL SELLING POINT.

**INPUT**



### SYSTEM FEATURES (cont'd)

- o MORE MODERATE (BUT STILL STATISTICALLY SIGNIFICANT DIFFERENTIALS ARE SHOWN BY THE BALANCE OF THE ITEMS. UPDATE FLEXIBILITY, EASE OF USE, BILL APPEARANCE AND CUSTOM PROGRAMMING FALL INTO THIS "LESS OF PROBLEM (BUT STILL A PROBLEM)" CATEGORY.

INPUT





### SYSTEM FEATURES, INDIFFERENT

- o A FINAL CLASS OF FEATURES ARE THOSE TO WHICH RESPONDENTS WERE INDIFFERENT OR SLIGHTLY NEGATIVE. THESE MAY BE SAFELY IGNORED IN PRODUCT DEVELOPMENT AND MARKETING ACTIVITIES (SHOULD THEY OCCUR).

<u>FEATURE</u>	<u>% USE NOW</u>	<u>RATING NOW</u>	<u>RATING 3 YRS</u>
USER MAINT. SYS TABLES	29.5	3.5	3.6
MICRO/M.F. COMBO	26.2	3.2	3.5
LOWER O.L. COSTS	19.7	4.1	4.3
MICRO-BASED BILLING	18.1	2.6	2.9
LOCAL BILL PROCESSING	16.4	2.8	3.2
REMOTE ACTIVATION	6.6	1.8	2.3

**INPUT**



### SYSTEM FEATURES (cont'd)

- o ITEMS ARE ORDERED BY PROPORTION CURRENTLY CLAIMING USE.
- o OBSERVE THAT NO FEATURE INCREASES IN IMPORTANCE IN A STATISTICALLY SIGNIFICANT WAY.
- o DEMAND FOR USER-MAINTAINED SYSTEM TABLES AND COMBINED MICRO-MAINFRAME PROCESSING IS MODERATE AND CONSTANT. THESE TWO FEATURES ARE "MARGINAL" IN THAT THEY FALL ON THE BOUNDARY BETWEEN "DESIRABILITY" AND "INDIFFERENCE" IN THE MINDS OF RESPONDENTS. IF TECHNICALLY APPROPRIATE, THEY MIGHT BE INCLUDED IN THE DEVELOPMENT AGENDA OR SERVICE CONFIGURATION BUT THEY ARE WEAKER THAN THE FIRST TWO CATEGORIES.

**INPUT**



### SYSTEM FEATURES (cont'd)

- o LOWER ON-LINE COSTS RECEIVED AN "APPLE-PIE" RESPONSE, AN "OF-COURSE" BY STUDY PARTICIPANTS. INFORMAL COMMENTS BY RESPONDENTS LEADS INPUT TO BELIEVE THIS IS NOT A DECISIVE FACTOR DESPITE ITS RATINGS. THIS IS APPARENTLY IN CONFLICT WITH THE STRONG DESIRE FOR NETWORK REDUNDANCY WHICH IS MUCH MORE IMPORTANT.
- o MICRO-BASED BILLING DOES NOT APPEAL VERY STRONGLY TO RESPONDENTS. APPARENTLY THIS GROUP BELIEVES THAT BILLING SYSTEMS MUST BE MAINFRAME-BASED. THIS IS A POSITIVE FOR GTEDS GIVEN ITS CURRENT DIRECTION.

INPUT



### SYSTEM FEATURES (cont'd)

- o LOCAL BILL PROCESSING WAS NOT DEEMED VERY NECESSARY BY RESPONDENTS. THE "INDIFFERENT" RATING INDICATES THAT GTEDS MAY PROCESS LOCALLY IF DESIRABLE FROM AN OPERATIONAL OR ECONOMIC STANDPOINT BUT THAT SUCH PROCESSING WILL NOT BE OF GREAT IMPORTANCE TO RESPONDENTS. THIS SHOULD BE SOLD AS "BACK-UP" MULTI-SITE AS OPPOSED TO LOCAL PROCESSING TO WHICH RESPONDENTS ARE LARGELY INDIFFERENT.
- o OBSERVE THAT RESPONDENTS RESPOND NEGATIVELY TO REMOTE SWITCH ACTIVATION. THIS IS NOT A DESIRABLE FEATURE.
- o INPUT BELIEVES THAT THESE SIX FEATURES MAY BE SAFELY IGNORED FOR THE VAST MAJORITY OF RESPONDENTS.

**INPUT**





### COMPETITIVE PROCESSING

- o RESPONDENTS WERE QUERIED AS TO WHETHER OR NOT IT WAS IMPORTANT IF THEIR PROCESSING WAS ACCOMPLISHED BY A WIRELINE COMPANY IF NON-WIRELINE AND VICE VERSA, DEPENDING ON THEIR STATUS.
- o OF THE NON-WIRELINE RESPONDENTS 11% INDICATED THAT THEIR PROCESSING WAS CURRENTLY ACCOMPLISHED BY A WIRELINE COMPANY. NO WIRELINES SO INDICATED.
- o NON-WIRELINES DID NOT CONSIDER THIS AN IMPORTANT FACTOR, RATING ITS IMPORTANCE AT 2.2 NOW AND 2.0 IN THE FUTURE. THE DIFFERENCE IS NOT STATISTICALLY SIGNIFICANT BETWEEN NOW AND 3 YEARS HENCE.

IMPORTANCE RATE	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>% 4/5</u>
% NOW	54	8	17	4	17	21
% 3 YEARS	56	9	13	13	9	22

**INPUT**



### COMPETITIVE PROCESSING (cont'd)

- o AS THE DATA SHOW, OVER HALF THE R'S CONSIDER WIRELINE PROCESSING SOURCE (AS NON-WIRELINES) UNIMPORTANT, I.E., RATE IT A "1."
- o A MATERIAL MINORITY - ABOUT 1 IN 5 - CONSIDER THIS AN IMPORTANT ISSUE. THIS PROPORTION IS STABLE OVER TIME.
- o EMPHASIS ON SECURITY, DATA INTEGRITY AND CONFIDENTIALITY MAY AMELIORATE THE FEARS OF THE MINORITY OF R'S WITH THIS CONCERN, BUT THIS IS BY NO MEANS GUARANTEED.
- o ON BALANCE THIS DATA MAY BE CONSIDERED A POSITIVE SINCE NEARLY 2/3 OF NON-WIRELINES CONSIDER THIS AN UNIMPORTANT FACTOR, RATING IT EITHER A "1 OR 2." ON THE OTHER HAND A MATERIAL MINORITY CONSIDER IT VERY IMPORTANT.

**INPUT**



COMPETITIVE PROCESSING (cont'd)

- o SHOULD MARKETING ACTIVITY COMMENCE, INPUT RECOMMENDS A PRO-ACTIVE APPROACH EMPHASIZING SECURITY, ETC., RATHER THAN AN ATTEMPT TO SKIRT THE ISSUE. ASSURANCES OF THIS TYPE WILL NOT DAMAGE THE GTEDS CASE WITH THOSE INSENTITIVE TO THE "COMPETITIVE" ISSUE BUT MAY REDUCE ANXIETY ON THE PART OF THOSE 20-22% CONCERNED WITH IT.
- o THE WIRELINES RESPONDED IN A SIMILAR FASHION. THIS INDICATES THAT THERE IS NOT A STRONG COMPETITIVE COMPONENT IN THE PROCESSING AREA. GIVEN THAT MARKETS ARE ASSIGNED AND THAT THERE ARE ONLY TWO COMPETITORS PER MARKET (VERY LIMITED DIRECT COMPETITION) THIS IS UNDERSTANDABLE.

INPUT



### SERVICE QUALITY

- o RESPONDENTS WERE QUERIED ON 16 ITEMS RELATED TO SERVICE QUALITY. THESE COVERED A WIDE RANGE AND ARE NOTABLE FOR THE GENERALLY MODERATE RATINGS. ON THE SCALE USER "ONE" REPRESENTED POOR QUALITY WHILE "FIVE" REPRESENTED EXCELLENT QUALITY.
- o IN ADDITION TO QUALITY RATINGS, RESPONDENTS WERE ASKED TO RATE THE IMPORTANCE OF EACH OF THE 16 SERVICE QUALITY ITEMS. THE DIFFERENTIAL BETWEEN THESE TWO IS A MEASURE OF SERVICE INADEQUACY, I.E. THE GREATER THE DIFFERENTIAL, THE LESS SATISFACTORY THE SERVICE LEVEL RELATIVE TO THE PERCEIVED REQUIREMENT.

**INPUT**





### SERVICE QUALITY RANKINGS

<u>SERVICE ITEM</u>	<u>QUALITY RATING</u>	<u>% 4/5</u>	<u>IMPORTANCE RATING</u>	<u>% 4/5</u>	<u>RATING DIFF.</u>
BILL ACCURACY	3.5	46	5.0	100	1.5
O/A QUALITY	3.4	44	4.9	98	1.5
BILL TIMELINESS	3.5	51	4.9	94	1.4
MGMT. REPORTS	3.3	39	4.7	90	1.4
DOCUMENTATION	3.1	31	4.5	80	1.4
TRAINING	3.2	41	4.5	88	1.3
PRICE	3.2	21	4.5	67	1.3
RELIABILITY, M.F.	3.7	62	4.9	98	1.2
TECH. ASSIST.	3.4	51	4.6	93	1.2
RERUNS	3.3	30	4.5	67	1.2
RELIABILITY, O.L.	3.7	46	4.8	77	1.1
UPDATE FLEX.	3.7	54	4.7	83	1.0
USE EASE	3.6	54	4.6	92	1.0
BILL APPEAR.	3.7	57	4.6	92	0.9
CUST. PGM.	3.6	54	4.5	82	0.9
CONTRACT	3.6	34	4.2	49	0.6

**INPUT**



### SERVICE QUALITY RANKINGS (cont'd)

- o THESE DATA ARE RANKED BY THE DIFFERENCE BETWEEN QUALITY AND IMPORTANCE RATINGS. ALL DIFFERENCES ARE STATISTICALLY SIGNIFICANT AT THE 90% CONFIDENCE INTERVAL BETWEEN QUALITY AND IMPORTANCE. THIS INDICATES A SUBSTANTIAL GAP BETWEEN SERVICE LEVELS DELIVERED AND DESIRED, A MOST SERIOUS CIRCUMSTANCE AND A POOR REFLECTION ON VENDORS.
- o DATA INDICATES THAT BILL ACCURACY, OVERALL SERVICE QUALITY AND BILL TIMELINESS ARE HIGHLY IMPORTANT AND SHOW THE GREATEST DEFICIENCIES.
- o CONTRACTUAL TERMS BRING UP THE BOTTOM OF THE LIST. NOTE PARTICULARLY THE SLIM MARGIN IN THE 4/5 RATINGS AT 34% VS. 49%. THIS IS THE AREA OF LEAST DIFFERENTIAL AND DOES NOT RECOMMEND ITSELF AS A KEY DIFFERENTIATOR.

**INPUT**



### SERVICE QUALITY RANKINGS (cont'd)

- o THE MEAN PROPORTION RATING 4/5 ON SERVICE QUALITY (GOOD/EXCELLENT) IS 44.7%. PRICE, RERUNS, DOCUMENTATION AND CONTRACT PROPORTIONS ARE WELL BELOW THIS AVERAGE WHILE M.F. RELIABILITY AND BILL APPEARANCE ARE WELL ABOVE. WITH RESPECT TO THE MEAN, THESE CAN BE CONSIDERED TO HAVE THE LOWEST RELATIVE SATISFACTION INDEPENDENT OF IMPORTANCE.
- o BILL ACCURACY, OVERALL QUALITY AND TIMELINESS HAVE THE HIGHEST DEVIATION FROM THE MEAN PROPORTION OF "HIGH IMPORTANCE" VALUE OF 82.5%. LOWEST IS CONTRACT TERMS FOLLOWED BY RERUNS AND PRICE.

**INPUT**



### SERVICE QUALITY RANKINGS (cont'd)

- o THIS DATA LEAVES LITTLE DOUBT THAT SERVICE QUALITY AS DELIVERED CAN BE IMPROVED OVERALL. IF THE PROBLEMS SEEN ARE NOT RESPONDENT - CAUSED OR ENDEMIC (PERHAPS BECAUSE OF VOLATILITY AND RAPID GROWTH), THEN GTEDS APPEARS TO HAVE AN OPPORTUNITY AND A CHALLENGE BEFORE IT: THE DEVELOPMENT OF A CELLULAR BILL PROCESSING SERVICE THAT ALIGNS ITS DELIVERY WITH USER NEEDS. SUCH A SERVICE SHOULD BE SUCESSFUL.

INPUT





### SERVICE PRICING

- o RESPONDENTS WERE ASKED TO RATE PRICES FOR A SERVICE WHICH MET THEIR NEEDS PROFILE ON A COST PER BILL BASIS. COSTS WERE STATED TO INCLUDE ALL ITEMS EXCEPT POSTAGE. ON THE 1-5 SCALE "ONE" REPRESENTED POOR VALUE WHILE "FIVE" REPRESENTED EXCELLENT VALUE.

<u>\$ PER BILL</u>	<u>% 1</u>	<u>% 2</u>	<u>% 3</u>	<u>% 4</u>	<u>% 5</u>	<u>% 4/5</u>	<u>MEAN</u>
5.00	48	34	14	2	2	4	1.8
3.50	10	29	38	17	6	23	2.8
2.50	2	7	33	37	21	58	3.7
1.75	2	2	5	36	55	91	4.4
1.25	0	2	5	12	81	93	4.7

- o OBSERVE THAT R'S ARE OVERWHELMINGLY NEGATIVE AT \$5.00/BILL WITH 82% OF RESPONSES A 1 OR 2.

**INPUT**



## SERVICE PRICING

- o AT A 30% REDUCTION TO \$3.50 THE DISTRIBUTION TAKES ON A RELATIVELY NORMAL SHAPE WITH SOME NEGATIVE SKEWNESS. WITH CREDIBLY SUPERB SERVICE A BILL PROCESSING BUSINESS MAY BE VIABLE AT \$3.50. 30% OF R'S ARE NEGATIVE WHILE 23% ARE POSITIVE.
- o AT ANOTHER 30% REDUCTION (APPROX.) TO \$2.50, THE DISTRIBUTION SHOWS VERY SUBSTANTIAL POSITIVE SKEWNESS WITH 58% POSITIVE AND ONLY 9% NEGATIVE. A STRONG CENTER STILL EXISTS AT 3, PULLING DOWN THE MEAN RATING.
- o AT \$1.75, THE DISTRIBUTION BECOMES OVERWHELMINGLY POSITIVE WITH 91% RATING 4/5 AND ONLY 4% NEGATIVE. THE CENTER ALSO EVAPORATES. THE MEAN RISES TO 4.4
- o DESCENDING ANOTHER 30% (APPROX.) HAS ONLY A MINOR EFFECT ON THE DISTRIBUTION MEAN, PUSHING IT TO 4.7. RESPONSES ARE NOW CONCENTRATED HEAVILY AT "5."

**INPUT**



SERVICE PRICING (cont'd)

- o THE DIFFERENCES BETWEEN MEANS ARE STATISTICALLY SIGNIFICANT AT THE 90% LEVEL AT ALL PRICE POINT INTERVALS EXCEPT \$1.75 TO \$1.25. THIS CONFIRMS THAT THE DIFFERENCES ARE MEANINGFUL.
- o THIS DATA SUGGESTS THAT A HIGHLY VIABLE PRICE POINT IS IN THE RANGE OF \$2.50/BILL. IT MIGHT BE INFERRED FROM THE RESPONSES THAT THE AVERAGE CURRENTLY PAID IS SOMEWHAT HIGHER THAN \$2.50 BUT LESS THAN \$3.50.

**INPUT**



## PRICE ELASTICITY

- o BY MULTIPLYING THE PRICE POINT BY THE PROPORTION INDICATING 4/5 (ABOVE AVERAGE VALUE) WE CAN DOCUMENT THE PRICE ELASTICITY OF THE SERVICE.

<u>PRICE</u>	<u>% 4/5</u>	<u>PRODUCT</u>	<u>PROD. % CHG.</u>
\$ 5.00	4	20.0	-
\$ 3.50	23	90.5	302.5
\$ 2.50	58	145.0	80.1
\$ 1.75	91	159.2	9.8
\$ 1.25	93	116.25	-27.0

- o THE PRODUCT MAY CONSIDERED AS A PROXY FOR "TOTAL DOLLARS AVAILABLE" AT A PRICE POINT.
- o THE DATA SHOWS THAT AFTER REACHING THE "PLAUSIBLE" PRICE OF \$3.50/BILL, SUBSTANTIAL INCREASES IN TOTAL MARKET ARE AVAILABLE TO \$2.50/BILL. IN THIS \$1.00 RANGE MARKET SHARE (AND TOTAL DOLLARS) WOULD BE VERY SENSITIVE TO PRICE. A 28.6% DROP IN PRICE FROM \$3.50 TO \$2.50 RESULTS IN AN 80% INCREASE IN PRODUCT.

**INPUT**





### PRICE ELASTICITY (cont'd)

- o A FURTHER DROP (30%) TO \$1.75 RESULTS IN ONLY A 9.8% INCREASE IN PRODUCT. A VERY AGGRESSIVE MARKET SHARE-ORIENTED CAMPAIGN WOULD PRICE BELOW \$2.50 BUT ABOVE \$1.75.
- o AT \$1.25 THERE IS NO FURTHER PRICE ELASTICITY AS PRODUCT DROPS ALMOST EQUALLY TO PRICE.
- o GIVEN THAT THE PRIOR DATA SHOWS PRICE TO BE OF ABOVE AVERAGE IMPORTANCE TO 67% OF R'S (LESS THAN OTHER FACTORS), INPUT WOULD RECOMMEND A PRICE IN THE VICINITY OF \$2.50/BILL TO OPTIMIZE TOTAL REVENUES AVAILABLE IF PROCESSING ECONOMICS PERMIT.
- o REDUCTIONS BELOW \$2.50 RESULT IN ONLY MODEST PRODUCT (TOTAL REVENUE) GAINS WHILE PRICES ABOVE \$2.50 ARE MUCH MORE SENSITIVE. A PRICE OF \$2.75 (+10%) WOULD RESULT IN A 14% REDUCTION IN PRODUCT FOR EXAMPLE.

**INPUT**



### PRICE ELASTICITY (cont'd)

- o AN AGGRESSIVE, "SHARE-SIEZING" STRATEGY WOULD SET THE PRICE BELOW \$2.50 BY A MODEST AMOUNT (5-10%). THIS COULD SUBSEQUENTLY BE RAISED AFTER SHARE WAS OBTAINED.
- o WHILE MOBILNET ECONOMICS AND VOLUMES MIGHT ALTER THE PRACTICAL SCENARIO, WE WOULD EXPECT GOOD TO EXCELLENT MARKET RESPONSE IN THE RANGE OF \$2.75 TO \$2.40 PER BILL ON THE BASIS OF THIS DATA UNDER A TOTAL REVENUE PRIMARY CRITERION. WE WOULD FURTHER EXPECT THAT THE SERVICE WOULD BECOME LESS VIABLE BEYOND \$3.00 PER BILL.
- o A FURTHER CONSIDERATION IS THE CONVERSION OR "DISRUPTION" PREMIUM. UNTIL GTEDS ESTABLISHES A TRACK RECORD FOR SUPERIOR SERVICE, CLIENTS WILL PERCEIVE THAT THEY ARE TAKING A RISK. IN RETURN FOR ACCEPTING THIS RISK THEY WOULD EXPECT AN ECONOMIC GAIN. THIS ARGUES FOR LOWER PRICES IF POSSIBLE.

**INPUT**



## ROAMER PRICING

- o WHILE THIS STUDY DID NOT FOCUS HEAVILY ON THE ROAMER ISSUE WHICH IS EXTREMELY COMPLEX AND MAY WARRANT ITS OWN STUDY SHOULD GTEDS ELECT ENTRY INTO THE CELLULAR BILLING MARKET, DATA WAS GATHERED ON "FAIR" AND "EXCELLENT" ROAMER PRICING.
- o R'S WERE ASKED TO SPECIFY A PRICE POINT REPRESENTING A "FAIR" ROAMER PRICE PER BILL WHEN BILLED THROUGH A CLEARING HOUSE. NEXT, THEY WERE ASKED TO SPECIFY A ROAMER PRICE REPRESENTING EXCELLENT VALUE.
- o 46% OF R'S WERE ABLE TO RESPOND TO THIS QUESTION. AT SLIGHTLY LESS THAN HALF OF ALL RESPONDENTS, DATA ON THIS QUESTION SHOULD BE USED WITH CAUTION AS THE MAJORITY WERE UNABLE TO PROJECT A PRICE POINT.
- o NEGLECTING ONE HIGH OUTLIER, R'S INDICATED A MEAN FAIR PRICE PER ROAMER "BILL" CLEARED AT \$0.19 PER BILL FOR A FAIR PRICE AND \$0.14 FOR AN EXCELLENT PRICE.

**INPUT**



### ROAMER PRICING (cont'd)

- o RESPONSES RANGED FROM AS LOW A \$0.02 FOR "FAIR" TO AS HIGH AS \$1.50 IN ONE CASE. RANGE WAS FROM \$0.02 (AGAIN) AS "EXCELLENT" TO A HIGH OF \$0.50.
- o GIVEN THE WIDE VARIATION IN RESPONSES, WE CONSIDER THIS LIMITED DATA AS USABLE ONLY WITH GREAT CAUTION. WE SUSPECT THAT R'S MAY HAVE RESPONDED PER CALL IN SOME CASES RATHER THAN THE REQUESTED PER BILL.
- o ASSUMING THE DATA "REALLY" MEANS PER CALL, WE WOULD CONCLUDE THAT 20¢ WOULD BE CONSIDER AS AN AVERAGE "FAIR" PRICE ACCEPTABLE TO MOST RESPONDENTS.

**INPUT**





## CONCLUSION

- o ON BALANCE, THIS MARKET APPEARS TO HAVE MERIT. IT IS:
  - EXPECTED TO GROW RAPIDLY.
  - CURRENT SERVICE IS INDIFFERENT TO POOR.
  - MANY USER WOULD CONSIDER CHANGING VENDORS.
  - CURRENT SYSTEMS LACK FEATURES WHICH ARE IMPORTANT TO USERS.
  - DIFFENTIATION IS POSSIBLE.
  - PRICING REQUIREMENTS APPEAR REASONABLE.
  - SERVICE QUALITY IS MORE IMPORTANT THAN PRICE.
  - MANDATORY FEATURES ARE PLAUSIBLE.
  - MAINFRAME PROCESSING IS DESIRABLE.
- o THE PRIMARY OFFSET IS THE RELATIVELY SMALL MARKET SIZE, I.E. \$33 MILLION IN 1989 AT \$2.50/BILL.

**INPUT**



## CONCLUSION (cont'd)

- o THERE IS A SUBSTANTIAL PROBABILITY THAT AT LEAST ONE COMPETITOR (BANK ILL.) WILL NOT BE A PARTICIPANT IN THE FUTURE. INPUT WOULD NOT BE SURPRISED BY OTHER MARKET CHANGES AS WELL. AMONG THE POSSIBILITIES ARE AN "EVACUATION" BY AUXTON (THROUGH THE MECHANISM OF SOFTWARE SALES FOR INHOUSE PROCESSING) AND A FAILURE OF CINCINNATI BELL/CBSI TO EFFECTIVELY INTEGRATE THEIR SEPARATE SYSTEMS. IN THE MAIN, THE COMPETITORS ARE FINANCIALLY WEAK OR ORGANIZATIONALLY FLAWED OR BOTH.
- o ACCORDINGLY, THERE IS AN OPPORTUNITY FOR A STABLE, PROPERLY MANAGED SERVICE TO FARE WELL IN THIS MARKET.

**INPUT**



## CONCLUSION (cont'd)

- o IF THE MARKET CONTINUES TO GROW WELL BEYOND THE FORECAST HORIZON AND IF A MAJOR SHARE CAN BE COMMANDED, THEN SUBSTANTIAL INVESTMENT COULD BE WARRANTED. THE VOLATILITY OF THIS MARKET MAKES EXTRAPOLATION TO THE FIVE YEAR HORIZON VERY RISKY. IF RATES EXPECTED IN THE 3 YEAR INTERVAL ARE EXTRAPOLATED TO 5 YEARS A \$75 MILLION MARKET EMERGES WITH ABOUT 2.5 MILLION PHONES AT \$2.50 BILL/MONTH. THIS IS A SUBSTANTIAL "SPECIALTY" MARKET BUT MATERIAL REVENUES WOULD REQUIRE A COMMANDING SHARE.
- o A MORE CONSERVATIVE APPROACH IS RECOMMENDED FOR THOSE NOT WISHING TO "BET" ON THE FUTURE GROWTH CONTINUING AT VERY HIGH RATES. PARTICIPATION WOULD BE BASED ON MODERATE INCREMENTAL INVESTMENT (FIRST IN MEETING FEATURES NEEDS, THEN IN MARKETING WORK) BEYOND THAT NEEDED FOR MOBILNET. BASED ON THE AVAILABLE DATA, THERE IS ONLY LIMITED RISK IN THIS APPROACH PROVIDED IT IS ACCOMPANIED BY RIGOROUS FINANCIAL ANALYSIS AND A THOROUGHLY DEVELOPED STEP-BY-STEP PLAN.

**INPUT**



## INTRODUCTION (cont'd)

- o IN SUM, THERE IS AN OPPORTUNITY HERE WITH "GOOD FIT" TO GTEDS INTERNAL PLANS AND NEEDS. THE SCALE OF INVESTMENT IS MODERATELY PROBLEMATIC BUT CAN BE "SOLVED" THROUGH APPROPRIATE ANALYSIS AND CALIBRATION OF RISK. OVERALL, INPUT'S VIEW OF THIS MARKET IS POSITIVE.

**INPUT**







